5(2), 5(4)

AUTHORS: Ivanchov, S. S., Yurzhenko, A. I. SOV/153-58-4-3/22

TITLE: Thermal Decomposition of Potassium Persulfate in the Presence of Salts of the Acids of the Aliphatic Series (Termicheskoye razlozheniye persul'fata kaliya v prisutstvii soley kislot zhirnogo ryada)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 13 - 18 (USSR)

ABSTRACT: Potassium persulfate is an "active" initiator of polymerization processes in emulsions, which is widely used in industry products of a free-radical type are formed in its thermal decomposition. In this connection more and more attention is paid to the kinetics and process of that decomposition, in dependence on the conditions. A survey of the publications so far available is presented (Refs 1-3). The influence exercised by salt additions on the decomposition rate of potassium persulfate is interesting, because in practical use the decomposition takes place in the

Card 1/4

presence of various salts. Accurate data on the influence of the salts mentioned in the title are not available. In the present paper the influence is investigated that is exercised by sodium salts of low fatty acids (from formiate to laurate) upon the polymerization kinetics in the emulsion, if the polymerization was initiated by potassium persulfate. Furthermore, the influence is investigated that is exerted by the above salts upon its decomposition rate (this is the only subject of this report) and the colloidal properties of the emulsifiers. Figure 1 presents experimental results of the decomposition of potassium persulfate in aqueous solutions a) without additions and b) in the presence of salts of fatty acids of various concentrations. As may be seen (Curves 1-3), the decomposition rate of the persulfate increases with increasing sodium-formiate concentration within the whole range of the concentrations investigated. When the next salt - sodium acetate - is introduced, the decomposition rate of the persulfate is increased only to

the concentration of the acetate of 0,02N. Further additions of acetate slow down the decomposition the more, the higher the acetate concentration is. That applies for all other salts up to capronate incl. If sodium caprylate and salts of higher acids are introduced, the persulfate decomposition in all concentrations is accelerated, i. e. the more, the higher the concentration of the additions introduced has been. The authors have come to the conclusion that the salts investigated can exercise different effects in concentrations above 0,02N. These effects depend on the length of the hydrocarbon radical of the anion: the lower salts (up to capronate) slow down the decomposition when large additions are introduced, whereas the decomposition is accelerated by higher ones; sodium formiate shows an anomalous behavior. If the anion radical is lengthened, the persulfate decomposition is accelerated in any case by introducing small quantities of salt. The above mentioned influence is explained by two effects: 1) By a

purely chemical, which is connected with the interaction between the salt and the persulfate, and leads to accelerated decomposition; 2) By the salt-effect which is analogous to that of inorganic salts and slows down the decomposition (in increased concentrations). The latter effect (2^{nd}) is decreased, if the hydrocarbon radical of the salt anion is lengthened, and is no longer visible above caprylate. The behavior of formiate requires further investigations. There are 4 figures, 6 tables, and 4 references, 2 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet (L'vov State University) Kafedra fizicheskoy i kolloidnoy khimii (Chair of Physical and Colloidal Chemistry)

SUBMITTED: September 16, 1957

YURZHENKO, A. I. [IUrzhenko, O.I.]; IVANCHCHOV, S.S.

Polymerization of styrene in an emulsion in the presence of sodium salts of lower aliphatic acids. Nauk.zap.L'viv.un. 46: 161-167 '58. (MIRA 12:7)
(Styrene) (Polymerization)
(Sodium salts)

AUTHORS: Yurzhenko, A. I., Ivanchov, S. S. SOV/ 20-120-2-35/63

TITLE: Influence of the Salts of the Lower Fatty Acid Series Upon Emulsion Polymerization (Vliyaniye soley ryada nizshikh zhirnykh kislot na emul'sionnuyu polimerizatsiyu)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 2, pp. 349 - 352 (USSR)

ABSTRACT: First, reference is made to a number of pertinent papers published previously. The influence of the sodium salts of the series of lower fatty acids ranging from sodium acetate to sodium laurate upon the polymerization of styrene in emulsion is investigated. The initial styrene (which is by 99,8% a monomer) was treated with a 20% solution of NaOH. It was stored on metallic sodium for some time and then sublimed in vacuum. The data documenting the influence in question upon the polymerization velocity are given in a diagram. The introduction of small amounts of salt (up to a concentration of 0,02 M) increases the reaction velocity. At concentrations above 0,02 M the introduction of the electrolyte has a varying effect

Card 1/3

Influence of the Salts of the Lower Fatty Acid Series Upon Emulsion Polymerization SOV/20-120-2-35/63

according to the nature of the anion. The lower homologs including sodium capronate show an increase of polymerization velocity when salts are added to the polymerization system. When the concentration 0,02 M is exceeded polymerization is retarded. Further details are given. The salts of the fatty acids belong to two groups according to their influence upon the polymerization process: 1) Salts of the lower fatty acids (from the acetate to the capronate). They give the highest polymerization velocity, according to the concentration. 2) The salts of the higher fatty acids (above capronate). The reaction velocity increases continuously with the concentration of the salt in the reaction mixture. The influence of these salts upon the molecular weight of the resulting polymers is similar. The influence of such additions of salts upon the initiation velocity is discussed. In the homolog series of the salts up to capronate the effect of salting out upon the emulgator predominates. Hence, the polymerization velocity and the initiation velocity are gradually reduced. With the salts of caprylic acid and of higher acids the stabilizing effect predominates.

Card 2/3

Influence of the Salts of the Lower Fatty Acid Series Upon Emulsion Polymerization SOV/20-120-2-35/63

There are 4 figures and 6 references, 3 of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im.Ivana Franko (L'vov State University imeni Ivan Franko)

PRESENTED: January 13, 1958, by P.A.Rebinder, Member, Academy of Sciences, USSR

SUBMITTED: January 13, 1958

1. Styrenes---Polymerization 2. Fatty acids---Chemical properties

Card 3/3

S/081/62/000/012/061/063
B158/B101

AUTHORS: Yurzhenko, A. I., Ivanchov, S. S., Zarechnyuk, O. S.

TITLE: Comparative initiating activity of diacyl peroxides of the paraffin series during polymerization of styrene

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 12, 1962, 661, abstract 12R42 (Sb. nauchn. rabot. In-t fiz.-organ. khimii AN BSSR, no. 8, 1960, 70-75)

TEXT: A study was made of the dependence of the initiating activity (IA) of symmetric diacyl peroxides of the fatty series: peroxides of dienanthyl (I), dicaprilyl (II), dipelargonyl (III), dicaprinyl (IV), dilauryl (V), dipalmityl (VI) and distearyl (VII) on the length of the hydrocarbon radical in the molecule. It is established that all the peroxides studied have identical thermal stability, but different IA, which is greater than in the case that the polymerization is initiated with benzoyl peroxide. The dependence of IA, which may be evaluated from the rate of polymerization of styrene, on the length of the organic radical chain of the peroxides studied is represented as a curve with a minimum. With

Card 1/2

Comparative initiating activity of ...

reduction in the length of the organic radical in the peroxide molecule in series V to I, an increase in the polymerization rate is observed; then increase is observed with lengthening of the hydrocarbon radical in the series V to VII. The intrinsic viscosity of the polymers did not depend on the length of the hydrocarbon radical of the peroxide and was determined only by the concentration of the latter. [Abstracter's note: Complete translation.]

Card 2/2

YURZHENKO, A.I.; IVANCHOV, S.S.; ZARECHNYUK, O.S.

Comparative initiating activity of peroxides of phenylcarboxylic acids in the polymerization of styrene. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no. 8:63-69 '60. (MIRA 14:3)

1. L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Styrene) (Peroxides) (Polymerization)

YURZHENKO, A.I.; IVANCHOV, S.S.; ZARECHNYUK, O.S.

Comparative initiating activity of diacyl peroxides of the paraffin series in the polymerization of styrene. Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR. no.3:70-75 '60. (MIRA 14:3)

1. L'vovskiy gosudarstvennyy universitet im. I. Franko.
(Styrene) (Peroxides) (Polymerization)

68709

S/069/60/022/01/021/025
D034/D003

~~5~~ 5.3830(A)
5.1220

AUTHORS: Yurzhenko, A.I., Ivanchov, S.S.

TITLE: The Effect of Fatty Acid Salts on the Process of Styrene Polymerization in Emulsions

PERIODICAL: Kolloidnyy zhurnal, 1960, Vol XXII, Nr 1, pp 120-127 (USSR)

ABSTRACT: The authors report on a study of the effect of sodium salts of fatty acids (from sodium formate to sodium palmitate) on the polymerization kinetics of styrene in an emulsion. This selection permitted study of the effect of the hydrocarbon radical of the anions of the added salts on the polymerization process and evaluation of their growing surface activity, which is of practical value. The technical emulsifiers of the type of fatty acid salts as used in the synthetic rubber industry often represent a mixture of salts of various

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D034/D003

The Effect of Fatty Acid Salts on the Process of Styrene Polymerization in Emulsions

higher and lower acids. For their investigation the authors purified the styrene specimens from inhibitors by processing them with a 20% alkali solution and subjecting them to a subsequent threefold vacuum distillation. Nekal served as emulsifier, and potassium persulfate as initiator of the polymerization. The sodium salts of different acids (propionic, lauric, etc.) were obtained by neutralization with sodium ethylate according to the method of W. Harkins [Ref. 8]. Polymerization was carried out in a dilatometer with magnetic mixer, as shown in Figure 1 (diagram). In contrast to the dilatometer proposed by V.A. Puchin and T.I. Yurzhenko [Ref. 9], the capillary of this device had a free exit for gases which in an inconsiderable amount could form during disintegration of the

4

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D034/D003

The Effect of Fatty Acid Salts on the Process of Styrene Polymerization in Emulsions

initiator ($K_2S_2O_8$) in the polymerization process. The investigation has established that, according to their effect (regularly changing with growing length of the hydrocarbon radical) on the process of styrene polymerization in an emulsion, the fatty acid salts fall into two groups: group 1 - salts of acids higher than caprylic, continuously increasing the speed of the process when introduced into the reaction mixture; group 2 - salts of acids below caprylic, weakening the polymerization process. An analogous effect of the investigated salts on the rate of initiation of the process and the molecular weight of the forming polymers could be observed: the salts of group 1 increase, and the salts of group 2, after some initial increasing, slow down

A

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Card 3/4

S/081/62/000/024/016/052
B117/B186

AUTHORS: Yurzhenko, O. I., Ivanchov, S. S.

TITLE: Effect of emulsifier composition on the kinetics of emulsion polymerization of styrene

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24 (II), 1962, 829 - 830, abstract 24P59 (Dopovidi ta povidoml. L'vivs'k. un-t, no. 9, part 2, 1961, 84 - 85 [Ukr.])

TEXT: The polymerization kinetics of styrene in an emulsion was studied in the presence of the salts of fatty acids having hydrocarbon chains of different lengths (stabilizers are sodium oleate or potassium palmitate). Addition of fatty acid salts having $\geq$ 8 C atoms in the chain was shown to increase the polymerization rate, molecular weight of the polymer and dispersion degree of latexes. The molecular weight of the polymer increases with the number of C atoms in the chain of the fatty acid salt. Furthermore it was shown that the effect of fatty acid salts, having $\leq$ 7 C atoms, on the polymerization kinetics depends on the concentration: small amounts increase the polymerization rate and molecular weight slightly; large amounts inhibit the process, reducing the dispersion

Card 1/2

S/081/62/000/024/016/052
B117/B186

Effect of emulsifier composition on ...

degree of latexes and the molecular weight. [Abstracter's note: Complete translation.]

Card 2/2

S/081/62/000/024/017/052
B117/B186

AUTHORS: Yurzhenko, O. I., Zarechnyuk, O. S., Ivanchov, S. S.

TITLE: Comparison of the initiating activity of some diacyl peroxides on styrene polymerization

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 24 (II), 1962, 830, abstract 24P60 (Dopovidi ta povidoml. L'vivs'k. un-t. no. 9, part 2, 1961, 86 - 87 [Ukr.])

TEXT: The thermal stability and initiating activity of diacyl peroxides of the phenyl carboxyl series (diacyl peroxide of benzoyl, hydrocinnamic and phenyl butyric acids) and paraffin series (diacyl peroxides of dienanthyl, dicaprylyl, diperargonyl, dicaprynyl, dilaurin, dipalmityl, and distearyl) were studied during styrene polymerization in bulk and in emulsion. In the phenyl carbonyl series, the diacyl peroxide of benzoyl is most active and the diacyl peroxide of hydrocinnamic acid, least. The thermal stability changes in the same way as the initiating activity. Diacyl peroxides of the paraffin series are more active than those of the phenyl carbon series: Polymerization is faster and the resulting polymer has a higher molecular weight. The thermal stability of diacyl peroxides

Card 1/2

Comparison of the initiating ...

of the paraffin series is independent of the length of the hydrocarbon radical and is constant for the peroxides studied. [Abstracter's note: Complete translation.].

S/069/61/023/006/003/005
B119/B101

AUTHORS: Ivanchov, S. S., Yurzhenko, A. I.

TITLE: Effect of salts of low aliphatic acids on the dispersion of the emulsifier solution and synthetic latexes prepared on their basis

PERIODICAL: Kolloidnyy zhurnal, v. 23, no. 6, 1961, 706 - 711

TEXT: 1% Nekal solution (sodium dibutyl naphthalene sulfonate) was mixed with sodium salts of formic, acetic, butyric, caproic, lauric, and palmitic acids in various amounts (up to ~0.1 moles/liter) in the presence and absence of potassium persulfate as initiator (0.4%). On the emulsions obtained, turbidity measurements (photometer of the type ФМ (FM) with nephelometer attachment) were conducted, as well as the determination of the surface tension according to A. Z. Kotukov and Ye. I. Lototskiy (Zavodsk. laboratoriya 9, 1100, 1953), the viscosity, and solubilizing ability (on the photoelectric colorimeter МФ-1 (MF-1) on the basis of the color intensity of Sudan III solutions and the solubilization of ethyl benzene by refractometer). The mean radius of

Card 1/3

Effect of salts of low...

the latex particles was determined on the basis of the light scattering of the dilute solutions. Results: According to their effect, the added aliphatic acid salts may be divided into two groups: (1) with low chain length up to and including Na-caproate; (2) with longer chains. With increasing chain length as well as increasing concentration, the salts of the first group cause a turbidity increase and, thus, an increase of the micellar weight of the emulsifier solution (partial precipitation of the emulsifier taking place at concentrations of 0.1 moles/liter). The viscosity of synthetic latex also increases, while the surface tension and rate of solubilization decrease (rate of solubilization without addition 8 - 12 hr, with 0.2 moles/liter sodium acetate 23 - 25 hr). The critical concentration of the micellar formation (CCM) of Nekal decreases with increasing salt concentration (sodium acetate 0.01 moles/liter CCM $= 7.9 \cdot 10^{-3}$%; 0.1 moles/liter CCM $= 4 \cdot 10^{-3}$%; sodium butyrate at 0.01 moles/liter CCM $= 7.6 \cdot 10^{-3}$%, at 0.1 moles/liter CCM $= 3.7 \cdot 10^{-3}$%). The solubilizing ability increases with increasing chain length of the salt, but shows a maximum for salt concentrations between 0.03 and 0.05 moles/liter. The particle size increases with the salt concentration up to a content of $\sim$0.08 moles/liter, and then remains constant. The

Card 2/03

15-57-1-974

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1, p 155 (USSR)

AUTHOR: Ivanchuk, A. M.

TITLE: The Frequency Spectra and Energies of Elastic Waves (Chastotnyye spektry i energiya uprugikh voln)

PERIODICAL: Nauch. yezhegodnik za 1954 g. Saratovsk. un-t, Saratov, 1955, pp 468-470.

ABSTRACT: Experiments on exposed rocks of different ages in the lower Volga region have shown the results indicated below. 1) The frequency spectrum of elastic waves has a resonant nature. The breadth of the band of maximum frequency depends on the nature of the rock in which the charge is set off. The most diffuse spectrum of waves is found where the charge is placed in sandy rocks. The maximum-frequency spectrum is displaced along the frequency scale when the conditions of the shot are altered. With an increase in charge (under uniform shot conditions) the elastic-wave spectrum has

Card 1/2

The Frequency Spectra and Energies of Elastic Waves (Cont.)

a lower frequency. A similar relationship is observed on increasing the path of travel for elastic waves (from source to detector). An increase in hardness of the rock at the shot point leads to an enrichment of the elastic-wave spectrum in high-frequency components. 2) The phase spectrum of the elastic waves is very complex and indicates large shifts in phase between different components of the waves. 3) The greatest energies are found in waves that form when the shot point is in clays. The energy of a wave also depends on the position of the charge relative to the interface of stratified rocks. The maximum energy is observed when the charge is placed in dense rocks near their contact with less consolidated underlying rocks. An increase in the size of the charge does not lead to a proportional increase in energy. With an increase in the velocity of waves in the region of the shot point, the shot energy of elastic waves is increased.

T. I.

Card 2/2

29652
S/169/61/000/005/002/049
A005/A130

3.9300

AUTHOR: Ivanchuk, A.M.

TITLE: The frequency spectra of direct waves

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 22, abstract 5 A 198. (Uch. zap. Saratovsk. un-t, 1960, vol. 74, 307-309)

TEXT: In conducting an experimental study of the frequency spectra of seismic waves in the vicinity of the shot focus, the Sarotov University in 1955-1956 obtained the following results. Increasing distance between the shot focus and the seismograph (from 14.5 to 28.6 m) leads to a shift of the spectral maximum to the left by 15-30 cps and an increase in the relative intensity of low-frequency components. Increase of the charge weight incident to propagation of a direct wave affects the spectrum as increase of distance does; for argillaceous sandstone the dependence was found to be more complicated. The author emphasizes that his data are the

Card 1/2

29652
S/169/61/000/005/002/049
A005/A130

The frequency spectra of direct waves

preliminary results of studying the spectra of waves forming incident to shots.

V. Kun

[Abstractor's note: Complete translation.]

Card 2/2

IVANCHUK, B.I.

Terrestrial magnetism and the magnetic fields of cosmic bodies. Nauka i zhyttia 10 no.7:46-50 Jl '60. (MIRA 13:7)
(Magnetism, Terrestrial)
(Magnetic fields (Cosmic physics))

L 47357-66 EWT(1)

ACC NR: AP6030513 SOURCE CODE: UR/0413/66/000/016/0054/0055

INVENTOR: Ivanchuk, B. N.; Lipman, R. A.; Merlin, L. M.; Ruvinov, B. Ya.

ORG: none

TITLE: Controlled-frequency pulse generator. Class 21, No. 184934

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 16, 1966, 54-55

TOPIC TAGS: pulse generator, transistor

ABSTRACT: An Author Certificate has been issued describing a controlled-frequency pulse generator (see Fig. 1) containing an integrating RC-circuit and a slave blocking-generator in the transistor. To increase the frequency stability of output pulses, a stabilitron tube is inserted in the main transistor, connected in parallel with a charge capacitance. To increase the capacity of output pulses, a source of supplemental emf is connected to the collector transistor. Orig. art. has: 1 figure. [Translation] [NT]

Card 1/2 UDC: 621.373.424:621.382.3

L 47357-66

ACC NR: AP6030572

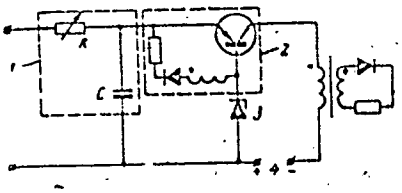

Fig. 1. Controlled-frequency pulse generator.
1—RC-circuit; 2—slave blocking generator in the transistor; 3—stabilitron tube; 4—source of supplemental emf.

SUB CODE: 10/ SUBM DATE: 02Mar65/

Card 2/2 mt

IVANCHUK, B.N.; LIPMAN, R.A.; RUVINOV, B.Ya.

A d.c. amplifier using regulated diodes with full-wave power supply. Elektrichestvo no.10:59-64 O '62. (MIRA 15:12)

1. Moskovskiy energeticheskiy institut.
(Amplifiers (Electronics))

43188
S/103/62/023/012/013/013
D201/D308

9.2530

AUTHORS: Ivanchuk, B.N., Lipman, R.A., and Rubinov, B.Ya. (Moscow)

TITLE: A single-rectifier full-wave magnetic amplifier

PERIODICAL: Avtomatika i telemekhanika, v. 23, no. 12, 1962, 1701 - 1711

TEXT: The authors analyse theoretically a simple series, self-saturating magnetic amplifier and show that, under certain conditions, one of the rectifying elements may be dispensed with, without impairing the overall amplifier performance. Expressions for a single-rectifier amplifier are obtained which determine the behavior of all amplifier parameters in stationary regime and make it possible to calculate all the necessary characteristics of the amplifier circuit. The results of analysis were applied to the experimental amplifiers with transistor and vacuum tube control amplifiers. The experiments have shown that in all cases the input-output characteristics of amplifiers were very nearly the same.

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ACCESSION NR: AT4040781 S/2657/64/000/011/0130/0143

AUTHOR: Ivanchuk, B. N., Lipman, R. A., Ruvinov, B. Ya.

TITLE: Simplified amplifier circuits using controllable valves with an active-inductive load

SOURCE: Poluprovodnikovy*ye pribory* i ikh primeneniye; sbornik statey, no. 11, 1964, 130-143

TOPIC TAGS: amplifier, DC amplifier, valve, controllable valve, semiconductor device, rectifier, gain factor

ABSTRACT: The authors note that the power circuit of amplifiers with DC output using semiconductor valves is normally based on well-known rectifier circuits. A full-wave rectifier arrangement with differential transformer, requiring a minimum number of valves (see Figure 1.a in the Enclosure), is also used. The active-inductive load in this Figure is normally shunted by a so-called reverse valve Δ_o. However, in those cases in which the inductive component of the load resistance $2\pi fL_H$ (f is the frequency of the supply net) is rather large in comparison with the active component R_H, the possibility is presented of employing, in place of the circuit shown in Figure 1.a, the far simpler

ACCESSION NR: AT4040781

arrangement shown in Figure 1.b. This set-up makes use of only one controllable (BY) and one uncontrolled (Δ) valve. The feasibility of the effective utilization of the circuit arrangement given in Figure 1.b flows from the fact that with half-wave rectification the magnitude of the load current depends both on the active as well as on the inductive component of the load resistance, while in the case of full-wave rectification the mean value of the load current is determined by the active component alone. Thus, when the following condition is fulfilled

$$\frac{\omega L_s}{R_s} > 1, \qquad (1)$$

this amplifier arrangement permits a wide range of current. The operation of this circuitry is examined in detail. A substantial shortcoming of the circuits shown in Figures 1, a and 1, b is the presence of the transformer Tp, through which the full load power is transmitted. The authors explain how this defect can be eliminated by feeding the circuit with a three-phase AC net, as shown in Figures 1, c and 1, d. Figure 1, e shows the power circuit of an amplifier with controllable valves with a 3-phase rectification set-up in which one of the valves can be uncontrolled, if condition (1) is

ACCESSION NR: AT4040781

ENCLOSURE: 01

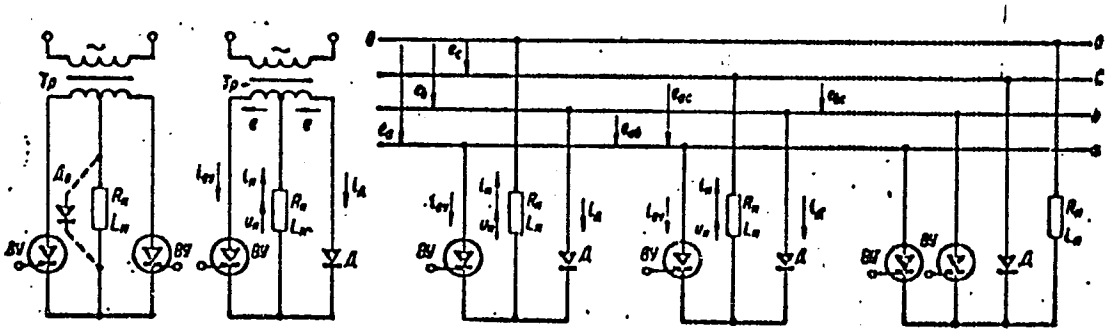


Fig. 1. Power circuit variants of amplifiers using controllable valves.

4/4

Card

ACCESSION NR: AT4040782 S/2657/64/000/011/0144/0159

AUTHOR: Ivanchuk, B. N., Lipman, R. A., Rubinov, B. Ya.

TITLE: Amplifier circuits using controllable valves and supplied with direct current

SOURCE: Poluprovodnikovy*ye pribory* i ikh primeneniye; sbornik statey, no. 11, 1964, 144-159

TOPIC TAGS: amplifier, DC amplifier, relay amplifier, pulse modulation, semiconductor device, silicon semiconductor, valve, controllable valve, silicon valve

ABSTRACT: The circuitry of a DC amplifier with capacitance quenching of the controllable valve is studied in detail in the course of a discussion regarding the possibility of employing silicon valves for the construction of amplifier circuits fed from a direct-current source. A triode, thermistor, photoresistance, etc. may be used as the controlled resistance in the examples proposed by the authors. The circuitry of a DC relay amplifier is described in the article, its operation is analyzed in depth and the fundamental engineering formulas pertaining to the device are derived. Expressions characterizing the maximum yield mode are studied and oscillograms illustrating the change in the variables in this working mode are presented in confirmation of

Card 1/2

IVANCHUK, Boris Nikolayevich; LIPMAN, Roydzhoy Aleksandrovich; RUVINOV, Boris Yakovlevich; CHILIKIN, M.G., red.;

[D.C. amplifiers with p-n-p-n- structure] Tiristornye usiliteli postoiannogo toka. Moskva, Energiia, 1964. 94 p. (Biblioteka po avtomatike, no.117. Elektroprivody s poluprovodnikovym upravleniem) (MIRA 17:11)

IVANCHUK, B.N. (Moskva); LIPMAN, R.A. (Moskva); NOVIKOV, B.Ya. (Moskva)

Transistorized magnetic amplifiers for d.c. motor control.
Elektrichestvo no.11:44-50 N '65. (MIRA 18:11)

IVANCHUK, L.F.; IVANCHUK, P.P.

Discovery of middle Miocene crabs in northern Daghestan. Izv.AN SSSR.Ser.geol. 22 no.3:87-88 Mr '57. (MLRA 10:5)
(Dagestan--Crabs, Fossil)

DOLINA, L.P.; IVANCHUK, L.F.; BARAMZINA, V.A.

Introducing geophysical methods of determining reservoir characteristics of strata as a basis for calculating oil resources and analyzing the exploitation of oil deposits. Trudy VNII no.29:103-112 '60.
(MIRA 13:10)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.
(Oil well logging, Electric)

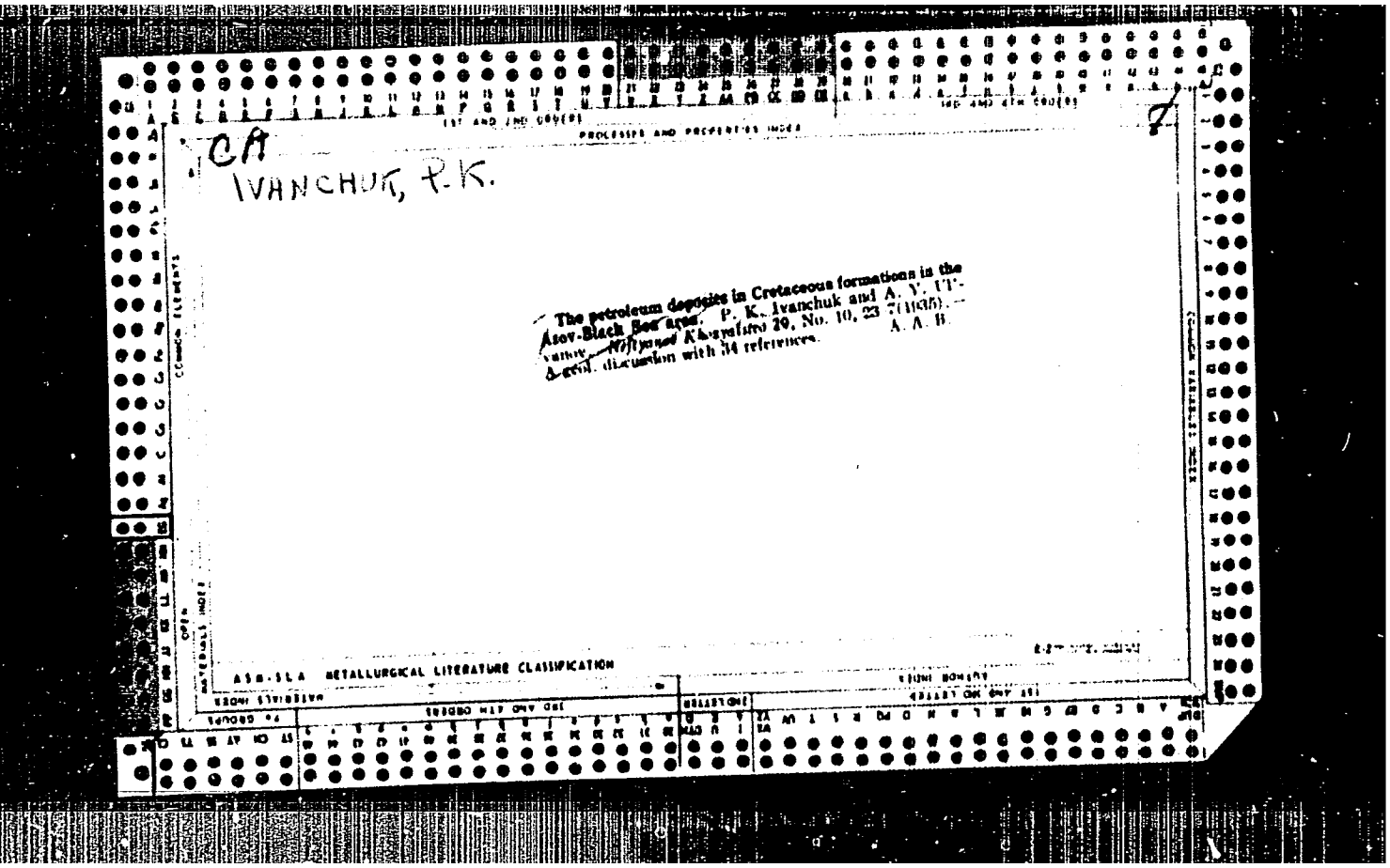
ZUDAKINA, Ye.A.; IVANCHUK, L.F.; BARAMZINA, V.A.

Change in the oil-water saturation of reservoirs during development based on a study of the Devonian oil pools in the Tuymazy and Bavli oil fields. Geol i geofiz. no.5:58-62 '64. (MIRA 17:9)

1. Vsesoyuznyy neftegazovyy nauchno-issledovatel'skiy institut.

ZUDAKINA, Ye.A.; IVANCHUK, L.P., BARAMZINA, V.A.

Studying the character of the oil and gas saturation of reservoirs close to the oil-water surface based on a study of the Devonian pools of the Tuymazy, Bavly, and Shkapovo oil fields. Trudy VNII no.45:177-192 '65. (MIRA 18:6)



IVANCHUK, P. K. Cand. Geolog-Mineralog Sci.

Dissertation: "The Pyatigorsk Area as a New Possible Petroleum-Gasbearing District." Moscow Order of the Labor Red Banner Petroleum Inst. imeni Academician I. M. Gubkin. 6 May 47.

SO: Vechernyaya Moskva, May 1947 (Project #17836)

IVANCHUK, P.K.

Results of base well drilling. Geol.nefti 1 no.11:36-[illegible] '57.
(MIRA 10:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologorazvedochnyy institut.
(Oil well drilling)

IVANCHUK, P.K.

Geological structure of the southwestern and southern Black Sea region. Trudy VNIGRI no.111:162-208 '57. (MIRA 11:6)
(Black Sea region--Geology)

IVANCHUK, P.K.; EDEL'SHTEYN, A.Ya.

Oil and gas potentials of the Moldavian S.S.R. Geol. nefti 2 no.12:17-22 D '58. (MIRA 12:2)

1. Institut geologii AN Moldavskoy SSR.
(Moldavia--Petroleum geology)
(Moldavia--Gas, Natural--Geology)

AUTHORS: Ivanchuk, P. K., Nakoryakov, V. D. 20-3-41/59

TITLE: On the Structure of the Eastern Border of the West-Siberian Lowland (O stroyenii vostochnogo borta Zapadno-Sibirskoy nizmennosti)

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 3, pp. 558-561 (USSR)

ABSTRACT: An important part of the Yenisei river can be assumed to be the eastern natural boundary of this lowland. The geological structure of the areas at its eastern bank was not clear. Only in 1956 3 supporting bore holes were drilled between the Kas river in the South and the Turukhan river in the North as well as inbetween on the Yeloguy river. From the Kas bore hole paleozoic deposits were extracted at a depth of 1665 and 2162 m: a complex of red rocks of equally grained lime-free sandstones with intermediate strata of argillites and aleuroliths. Beginning with 1800 m the rocks contain more gypsum. Jurassic deposits covered by a mass of chalk deposits are stratified on it. The Yeloguy bore hole shows similar structure. It is possible that here the Paleozoic is older than in the North and in the South.

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It was found at a depth of 1465 m with a thickness of 45m. It consists of strongly destroyed dolomites covered by aleuroliths of small thickness. In the Kas- and Yeloguy--bore holes Jurassic deposits are stratified directly on paleozoic sediments at a depth of 1167 - 1665, and 1207 - 1465 m, respectively. Upper Cretaceous sediments are everywhere on top of the cross section and are spread all over the area. At the Yelogue river intermediate strata of brown coal occur. A comparison of the cross sections shows that in the West of the Yenisei river and in the North of the Kas river the formations of Jurassic time and of Lower, and partly also of Upper, Cretaceous time are followed by marine deposits. The present fragmentary geological and geophysical data hardly admit an uniform conception of the structure of that part of the lowland which is near the Yenisei river. In the case of all three sections investigated a gradual singing of the fundamental surface and its mesocainosoic cover toward the West could be distinctly observed. In the tectonics of the latter cover a sharp angular unconformity and possibly a considerable stratigraphic break is important. In the parts north and north-

On the Structure of the Eastern Border of the West-Siberian Lowland 20-3-41/59

-west of the area of the Kas river marine and litoral sediments suited for the production of petroleum and gas were developed the thickness of which increases towards the North. The area can be regarded favourable for the occurrence of gas and petroleum. There is 1 figure.

PRESENTED: May 11, 1957, by S. I. Mironov, Academician

SUBMITTED: May 9, 1957

AVAILABLE: Library of Congress

Card 3/3

IVANCHUK, P.K.; KOZLOV, I.G.; GRACHEV, R.I.

Geological results of exploratory drilling in the U.S.S.R. for the period 1947-1957. Trudy VNIGRI no.132:100-111 '59. (MIRA 17:1)

FEDOTOVA, R.D.; MOROZ, V.F.; PARUTA, V.T.; VEYLINSON, L.I.; VOROB'YEV, A.A.; DEMCHENKO, I.I., red.; IVANCHUK, P.K., red.; RADUL, M.M., red.; SHARGORODSKIY, T.I., red.; DMITRENKO, N.Z., red.; MANDEL'BAUM, M.Ye., tekhn. red.

[Some problems in developing the wall materials industry in the Moldavian S.S.R. in 1959 - 1965] Nekotorye voprosy razvitiia promyshlennosti stenovykh materialov v Moldavskoi SSR v 1959 - 1965.gg. [By] R.D.Fedotova i dr. Kishinev, Izd-vo "Shtiintsa" Moldavskogo filiala AN SSSR, 1960. 229 p. (MIRA 17:2)

MATSYUK, L.S., otv. red.; VARTICHAN, I.K., red.; GEYDEMAN, T.S., red.; DIKUSAR, I.G., red.; ZUBKOV, A.A., red.; IVANCHUK, P.K., red.; KOVARSKIY, A.Ye., red.; KOLESNIKOV, S.M., red.; KONSTANTINOV, M.K., red.; MOKHOV, N.A., red.; SAYANOV, V.S., red.; TABUNSHCHIK, F.Z., red.; CHEBOTAR', A.A., red.

[Transactions of the First Conference of Young Moldavian Scientists] Trudy pervoi nauchnoi konferentsii molodykh uchenykh Moldavii, 1958. Kishinev, Gos. izd-vo "Kartia Moldoveniaske, 1960. 390 p. (MIRA 15:3)

1. Nauchnaya konferentsiya molodykh uchenykh Moldavii, 1st, 1958. 2. Institut biologii Moldavskogo filiala Akademii nauk SSSR (for Kolesnikov, Chebotar'). 3. Institut geologii i poleznykh iskopayemykh Moldavskogo filiala Akademii nauk SSSR (for Sayanov).

(Moldavia--Science--Congresses)

DRUMEA, A.V. [Drumya, A.V.]; IVANCIUK, P.K. [Ivanchuk, P.K.]

Geologic structure of Insula Serpilor (Black Sea). Analele geol geogr 16 no.3:89-95 Jl-Ag '62.

DRUMYA, A.V.; IVANCHUK, P.K.

Geology of Zmeinyy Island (Black Sea). Biul.MOIP.Otd.geol. 37 no.1:125-129 Ja-F '62. (MIRA 15:2)
(Zmeinyy Island--Geology)

IVANCHUK, P.P.

AID P - 2098

Subject : USSR/Geology

Card 1/1 Pub. 78 - 11/24

Author : Ivanchuk, P. P.

Title : Experiments in using aerial photographic material in geological surveying

Periodical: Neft. khoz., v.33, no.4, 52-54, Ap 1955

Abstract : Aerial photography gives a good picture of the tectonic structure of a locality. The author suggest this kind of surveying for the mountainous northern region of Dagestan in the Caucasus.

Institution: None

Submitted : No date

IVANCHUK, P. P.

"On the Problems of Tectonophysical Studies Connected with Search and Prospecting for Deposits of Petroleum and Gases," paper presented at the First All-Union Conference on Tectonophysics, Moscow, 29 January through 5 February 1957.

All-Union Scientific Research Institute of Gases.

Sum 1563

Ivanchuk, P. P.

3-7-24/29

AUTHOR: None Given

TITLE: To the Future Geologists - a Habit of Spatial Thinking (Budushchim Geologam - navyki prostranstvennogo myshleniya)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, July, p 82 (USSR)

ABSTRACT: The author refers to a letter to the editor by P. P. Ivanchuk, geologist and physicist, relating to the training of geologists and workers of the oil industry, who must be able to do three-dimensional designing. For this purpose they have to be specially trained for the geological spatial mode of thinking which will enable them to execute such tasks.

The author also suggests that special vuz auditoriums be equipped with training aids such as block diagrams, models, geological maps, etc.

AVAILABLE: Library of Congress

Card 1/1

IVANCHUK P.P.

IVANCHUK, P.P., kand.geol-min.nauk

Aerial photography in the service of petroleum workers. Neftianik 2 no.10:19-21 O '57. (MIRA 10:12)
(Photography, Aerial)

IVANCHUK, P.P.

Geological bases for the petroleum-bearing potential of Mesozoic deposits in northern Daghestan. Razved.i okh.nedr 23 no.3:1-11 Mr '57. (MLRA 10:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gaza i iskusstvennogo shidkogo topliva.
(Daghestan--Petroleum geology)

IVANCHUK, P. P.

IVANCHUK, L.F.; IVANCHUK, P.P.

Discovery of middle Miocene crabs in northern Daghestan. Izv.AN SSSR.Ser.geol. 22 no.3:87-88 Mr '57. (MLRA 10:5)
(Dagestan--Crabs, Fossil)

IVANCHUK, P.P.

Hydrogeological characteristics of northern Daghestan. Sov. geol. 2 no.7:123-127 Jl '59. (MIRA 13:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut prirodnykh gazov (VNIIGAZ).
(Daghestan--Water, Underground)

IVANCHUK, P.P.

Some characteristics of the formation of the Gazli gas and oil field. Trudy VNIIGAZ no.16/24:56-70 '62. (MIRA 15:8)
(Gazli region--Gas, Natural--Geology)
(Gazli region--Petroleum geology)

IVANCHUK, P.P.

Significance of the disintegration of the anticline arches by paleowaters in evaluating gas and oil occurrences in western Central Asia. Neftegaz. geol. o geofiz. no.8:32-37 '63. (MIRA 17:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut prirodnogo gaza.

IVANCHUK, P.P.

Role of Cretaceous artesian waters in the destruction of the arches of platform uplifts in the western part of Central Asia in the Neogene. Biul. MOIP. Otd. geol. 39 no.1:132-146 Ja-F '64. (MIRA 18:4)

PYATKOVSKIY, G., inzh.-informator; IVANCHUK, V.; KZHAKHOV, V.; SIMONOV, M.; KHROMOV, K., zhurnalist (Baku); DUDETSKIY, E.; TRAVNIKOV, N.

We are living this way. Izobr. i rats. no.12:8-9 '63. (MIRA 17:2)

1. Trest "Kommunarskugol'", Luganskaya obl. (for Pyatkovskiy). 2. Sotrudnik oblastnoy gazety "Krasnyy Sever", Vologda (for Ivanchuk). 3. Starshiy inzh. Kazakhskogo respublikanskogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov (for Kzhakhov). 4. Sekretar' Udmurtskogo oblastnogo soveta Vsesoyuznogo obshchestva izobretateley i ratsionalizatorov, Izhevsk (for Simonov). 5. Nachal'nik otdela tekhniki bezopasnosti Lyuberetskogo zavoda imeni Ukhtomskogo (for Dudetskiy). 6. Korrespondent zhurnala "Izobretatel' i ratsionalizator" (for Travnikov).

S/169/62/000/005/077/093
D228/D307

AUTHOR: Ivanchuk, V. G.

TITLE: Determining the contours of hydrogen lines in auroral spectra

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 21, abstract 5G150 (Visnyk Kyivs'k. un-tu, 1960 (1961), no. 3, ser. astron., fiz. ta khimii, no. 2, 114-116)

TEXT: The results are given for the study of the hydrogen emission in the lines H_α and H_β in 20 spectra, obtained in accordance with the IGY program at Tiksi Bay in 1958. The data obtained are compared with the results of other research workers. The author comes to the conclusion that the hydrogen line contours in different auroras are not constant. [Abstracter's note: Complete translation.]

Card 1/1

IVANCHUK, V. I.

20-4-12/52

AUTHOR: Ivanchuk, V. I.

TITLE: The Variability of the Magnetic Field and the "Heating" of the Solar Atmosphere (Peremennost' magnitnogo polya i "nagrev" atmosfery solntsa)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 589-592 (USSR)

ABSTRACT: The causes for the high temperature of the solar corona ($T_e \approx 10^6$ °K) are not yet completely cleared. Both the investigations and computations carried out by the author confirm the idea about the heating of the corona by electric rotational fields which occur on account of the variability of the magnetic field of the sun, first expressed by I. S. Shklovskiy (reference 1). Comparing a great number of observation-data it is concluded that all phenomena of solar activity and corona activity are correlated in some way with the magnetic fields. All magnetic fields of the sun are apparently variable. On the average it holds that $\Delta t \sim l/H$ (Δt - average duration of the damping of the magnetic field) l - dimensions of the field, H - magnetic field strength). Also the general magnetic dipole field is most likely variable, but it has a very long period of damping). The author then

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The Variability of the Magnetic Field and the "Heating" of the Solar Atmosphere

20-4-12/52

enumerates a number of facts in favor of this conclusion. The energy of the variable magnetic field of a star is either applied for the joulean (Dzhoul) heat, or it is transmitted to the surface by magnetic-hydrodynamic waves. The author then gives a formula for the average energy of the magnetic field of a star: $\mathcal{E}_M = \int (H^2/8\pi) d\tau$. In this case τ is the volume-element. $\mathcal{E}_M \sim M v_t^2/2$ is found for the whole volume of the star. Here M denotes the mass of the star and v_t the turbulent velocity averaged over the whole volume. Between the speeds of revolution of the stars and the turbulent velocities on their surface, there apparently exists a linear correlation. On the strength of the afore-mentioned formula results the proportionality between the magnetic moments and the angular momenta of the star as was observed by many research workers. Apparently not the whole energy of the magnetic field is "decaying" within the star, but a part of the energy is conducted to the surface. When $\mathcal{E}_{\odot}^{M} / 10$ is consumed in the solar atmosphere, the energy balance of the solar corona is guaranteed. There are 19 references, 11 of which are Slavic.

Card 2/3

The Variability of the Magnetic Field and the "Heating" of the Solar Atmosphere 20-4-12/52

ASSOCIATION: State University imeni T. G. Shevchenko, Kiyev (Kiyevskiy gosudarstvennyy universitet imeni T. G. Shevchenko)

PRESENTED: December 2, 1957, by V. G. Fesenkov, Academician.

SUBMITTED: June 10, 1957

AVAILABLE: Library of Congress

Card 3/3

39318

S/035/62/000/007/035/083
A001/A101

3,1540
24.2120

AUTHOR: Ivanchuk, V. I.

TITLE: On the problem of magnetic energy dissipation in the solar atmosphere

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 7, 1962, 61, 7A434 ("Visnyk Kyivs'k. un-tu", 1958, no. 1, ser., astron., matem. ta mekhan., no. 2, 143 - 152, Ukrainian; Russian summary)

TEXT: The rate of magnetic energy change in some volume is characterized by quantity w, the quantity of dissipating magnetic energy in unit volume of ionized gas per 1 sec. If displacement current is neglected, w = Ej (Joule losses) where j is current strength, E is intensity of electric field. It is shown that $w = \sigma_1 E_1^2$, where σ_1 is conductivity in direction perpendicular to magnetic field and E_1 is component of electric intensity vector transverse to magnetic field, be applied in the general case, in particular for the chromosphere. The case of direction. Values of σ_1, calculated usually for completely ionized gas, cannot "mixed plasma" consisting of protons, hydrogen atoms and electrons is considered. The following expression for conductivity was obtained:

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S/035/62/000/007/035/083
A001/A101

On the problem of magnetic...

$$\sigma_1 = \frac{nek_p(F^2 + kk_p)}{H(F^2 + kk_p)^2 + k_p^2},$$

where $n = n_p \approx n_e$ (density of protons and electrons in quasineutral plasma)

$$F = \frac{n_a}{n_a + n_p}$$

(n_a is density of neutral hydrogen atoms), $k = 1/w\tau_{ep}$ and $k_p = 1/w_p\tau_{pa}$, where w and w_p are circular frequencies of electron and proton respectively; τ_{ep} and τ_{pa} are times between collisions electron-proton and proton-neutral atom. A formula for conductivity of completely ionized gas is derived from the relation obtained for particular cases. Assuming certain expressions for k and k_p, as well as particular values for n_a, n_p, n_e and magnetic field H, the author calculates the values of σ_1 for the chromosphere and corona. From the physical viewpoint, the presence of neutral particles as though "neutralizes" the action of the magnetic field, increasing the transmission speed of charged particle momenta transverse to the magnetic field and thereby increasing gas conductivity. In the

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On the problem of magnetic...

extreme case, equalization of conductivities along and across magnetic field is possible. Possible sources of σ_1 errors are discussed. A sharp jump of σ_1 at the chromosphere-corona boundary deserves a special attention. If electric currents exist in the Sun's atmosphere, induced by variable magnetic fields, then they should attain maximum values just in this transition region. Quantitative calculations performed by the author previously indicate the possibility of explaining in this way the reason of heating of the chromosphere and corona. The dependence of σ_1 on magnetic field makes it possible to explain the existence of regions with different temperatures at equal altitudes. There are 14 references.

E. Gurtovenko

[Abstracter's note: Complete translation]

Card 3/3

80519

SOV/169-60-1-1049

3.9000

Translation from: Referativnyy zhurnal, Geofizika, 1960, Nr 1, p 139 (USSR)

AUTHORS: Ivanchuk, V.I., Sukhoivanenko, P.Ya.

TITLE: The Glow of Hydrogen and Helium in Polar Lights

PERIODICAL: Astron. tsirkulyar, 1958, October 16, Nr 196, pp 9 - 11

ABSTRACT: The first results of studying the spectrograms in the range from 4,700 to 6,600 Å are presented, which were obtained during the observations of polar lights by means of the SP-48-spectrograph in the time from January to April 1958 near the Tiksi bay ($\varphi = 71^{\circ}33'$, $\lambda = 128^{\circ}54'$). The average dispersion amounts to 85 Å/mm. The average exposition for stationary spectrograph was 3 - 4 hours. At the most spectra the intense hydrogen lines Hα and Hβ are present. Their maxima are displaced to the violet edge by 8 - 9 Å. That is in keeping with an average velocity, 500 km/sec, of the solar protons retarded in the earth atmosphere. In some spectra the line $\lambda = 5,867$ Å is detected, which may be identified with the line D_3 ($\lambda = 5,876$ Å) of neutral helium, which is displaced to the violet edge analogously to the hydrogen

Card 1/2

Chair of Astronomy Kiev State Univ

The Glow of Hydrogen and Helium in Polar Lights

lines. According to the experiments carried out by Fan and Meynel (RZhFiz, 1956, Nr 8, 24341; 1959, Nr 9, 26778), the line λ = 5,876 He I must be observed in the spectra of polar lights. Simultaneously, the lines of ionized nitrogen N II λ = 5,004 and λ = 5,680 Å must become stronger. These lines are very intense in the present helium spectra. Earlier in February 11, 1958, flashes of helium glow at the line λ = 10,829 Å were recorded in Zvenigorod. The problem of the existence of helium in the composition of the solar corpuscular streams is very important for the theoretical interpretation of the excitation of the spectra of polar lights and for a great number of other problems in the physics of high layers of the atmosphere.

D.A.M.

Card 2/2

S/733/60/000/003-4/002/012
I046/I246

AUTHOR: Ivanchuk, V.I.

TITLE: Variability of the solar magnetic field and the heating-up of the solar atmosphere

SOURCE: Lvov. Universitet. Astronomicheskiy sbornik, no. 3-4, 1960, 19-30

TEXT: The author shows that the coronal gas can be heated up to sufficiently high temperatures by the electric field $\vec{E}$, $\vec{E} \perp \vec{H}$, rot $\vec{E} \neq 0$, produced by the variation of the total magnetic field of the sun. The energy of the total magnetic field of the sun is estimated by various methods at 10^{37} erg, and its period of variation is taken as 5.5 years (one quarter of the 22-year cycle); the corresponding average intensity of the rotational electric field calculated for a spherical homogeneous atmosphere (a dipole of variable magnetic moment) is 10^{-5} volt/cm. The dissipation of energy in the atmosphere is determined making use of the author's new formula for the electric conductivity of plasma in the direction perpendicular to the magnetic field, derived with allowance for collisions with neutral particles:

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Variability of the solar magnetic field...

$$\sigma_{\perp} = \frac{n_e e c}{H} \frac{(kk_a + F^2)\, k_a}{(kk_a + F^2)^2 + k_a^2},$$

where F is the relative number of neutral particles, k-the number of electron-proton collisions during one revolution of the electron in the magnetic field, and k_a-the number of collisions between protons and neutral atoms during one revolution of the proton. The energy dissipated in a 1 cm^2 coronal column at $\sigma_{\perp} = 3 \cdot 10^{10}$ CGSE is $3 \cdot 10^4$ $erg/cm^2 \cdot sec$, which is quite sufficient to ensure the required heating-up of the atmosphere. There are 3 figures.

ASSOCIATION: Kievskiy gosuniversitet (Kiev State University)

Card 2/2

3,1810

39103
S/169/62/000/006/087/093
D228/D304

AUTHOR: Ivanchuk, V. I.

TITLE: Classification of auroral spectra

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1962, 25-26, abstract 6G146 (Sb. rabot po Mezhdunar. geofiz. godu, Kiyevsk. un-t, no. 1, 1961, 58-66)

TEXT: Spectroscopic observations of auroras which were made in Tiksi Bay in January-March 1959 by means of СП-48 (SP-48) and SP-49 spectrographs, are described. The results of the processing of 60 spectra in the region 4700 - 6100 Å are presented. The analysis of the resulting data showed that all spectra can be arranged in a continuous series in which up to 10 groups can be distinguished. The behavior of the line 5200 [NI], belonging to the forbidden $^4S^o - ^2D^o$ transition with an excitation potential of 2.37 eV is most characteristic of the region under investigation. The groups were split into two classes A and B. Each group in a class was designated by the indices 1, 2, 3 or by intermediate ones. The "pure"

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Classification of auroral ...

night-sky spectrum is designated by N. The most emission-rich spectrum belongs to the extreme type B_3. Here the molecular bands N_2^+, O_2^+, N_2 1PG and the atomic lines NII, OI are very strongly developed, but λ5200 [NI] and λ5893 NaI are very weak. It is convenient to compare the intensity of the line 5200 [NI] with that of the neighboring band λ5228 N_2^+(0-3). The spectra, whose intensity ratio

$$s = \frac{I_{5200}^{NI}}{I_{5228}^{N_2^+}}$$

equals 0.5 and 1.0 respectively, are attributed to groups B_2 and B_1. The relative intensity of the molecular bands N_2 1PG and O_2^+ decreases rapidly as the relative intensity of λ5200 and index S increases. The intensity of the N_2^+ band and the NII and OI atomic lines

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S/169/62/000/006/087/093
D228/D304

of permissive transitions decreases to a lesser extent. It may be stated, therefore, extremely conditionally that with the change from B to A (when $s > 1$) the "molecular" spectrum becomes "atomic". Groups A_3, A_{2-3} and A_2 are characterized by increased spectral indices s: s_{A_3} = 1.5-3; $s_{A_{2-3}}$ = 4-6; s_{A_2} = 10. Then the spectrum smoothly changes through group A into the night-sky spectrum N, where almost all emissions disappear with the exception of λ5577 [OI], λ5893 NaI, and the rather positive λ5200 [NI]. In groups A_1 and N the value of the spectral index s becomes indefinite on account of the low intensity of λ5228 N_2^+; this is comparable to the grain fluctuations of the continuous spectrum. Most spectrograms belong to the "average" spectral type A_3 which can be obtained from the superimposition of the neighboring and extreme groups of spectra. In the author's opinion, such a physical parameter as the glow height in h may above all underlie the proposed classification. If

Classification of auroral ...

the spectrum is not purely "local", however, its spectral class will pertain to a certain effective height of glow. Despite the rather approximate qualitative character of the proposed classification, the author draws a number of conclusions. 1) In a first approximation different types and forms of radiances (rays; radiant and homogeneous arcs; flaming, pulsing and diffuse radiances) are to some extent distinguished by the spectrum in which they are parted altitudinally. 2) The possibility arises for determining the height of glow from the unique "spectral parallax". For this it is necessary to standardize the relationship "spectrum-height" and to find theoretically and verify observationally the dependence of the spectral index s on the height. 3) The results of observations of the hydrogen line H_β showed that the glowing of hydrogen mostly occurs at great heights. It follows from simultaneous measurements at the zenith and on the horizon that hydrogen luminescence is most probably dispersed throughout the sky to occupy a large area and is not localized in any volume of auroral glow. In the author's opinion, these facts indicate that auroral glow is not caused by hydrogen corpuscles but is apparently induced by other particles -- poss-

Card 4/5

S/169/62/000/006/087/093
D228/D304

Classification of auroral ...

ibly by high-energy electrons of 10 - 100 k.e.V., present in the outer radiation belt, or possibly by low-energy electrons, present in the same zone during the passage of an electric discharge.
[Abstracter's note: Complete translation.]

Card 5/5

3525
S/035/62/000/002/017/052
A001/A101

3,1810 (also 1041)

AUTHORS: Ivanchuk, V. I., Sukhoivanenko, P. Ya.

TITLE: Emission of hydrogen and helium in auroras

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 2, 1962, 53, abstract 2A445 ("Mezhdunar. geofiz. god. Inform. byul.", 1961, no.3, 35-38, English summary)

TEXT: The authors discovered on spectrograms, taken with a GT-48 (SP-48) spectrograph, that emission λ 5867 is enhanced simultaneously with enhancement of hydrogen emission in lines H_α and H_β. They adduce evidence for identification of this line with the known helium emission in D_3 line λ 5876, displaced towards violet because of the Doppler effect. There are 10 references.

From authors' summary

[Abstracter's note: Complete translation]

Card 1/1

S/035/62/000/008/030/090
A001/A101

AUTHORS: Ivanchuk, V. I., Nesmyanovich, A. T.

TITLE: Extension of coronal fans

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 8, 1962, 64, abstract 8A421 ("Solnechnyye dannyye", 1961, no. 5, 56 - 59)

TEXT: The average extension of fans $\overline{L}$ was deduced from 20 eclipses from 1878 to 1961. The least extension (1.1 $R_\odot$) is observed close to maximum of solar activity and the maximum one (2.2 $R_\odot$) in 1 to 2 years prior to a minimum. Periodicity in $\overline{L}$ corresponds to periodic variations of the general solar magnetic field according to Babcock's observations. These data corroborate Ye. A. Ponomarev's hypothesis (RZhAstr, 1958, no. 6, 3808) which explains the fan shape by streams of substance in the general magnetic field of the Sun; according to Ponomarev, the less the field intensity, the less the fan part of a helmet. Changes in the inclinations of fans and coronal jets with the phase of solar activity studied by Ye. Ya. Bugoslavskaya, point also to a relation between $\overline{L}$ and the field, as well as the fact that $\overline{L}$ attains a maximum when sunspots of a new cycle appear in high latitudes. There are 8 references.
[Abstracter's note: Complete translation] A. Del'ne

Card 1/1

VSEKHSVYATSKIY, S.K.; IVANCHUK, V.I.

General structure of the solar corona of February 15, 1961. Astron. tsir. no.222:3-6 My '61. (MIRA 15:4)

1. Kafedra astronomii Kiyevskogo gosudarstvennogo universiteta.
(Sun—Corona)

VSEKHSVYATSKIY, S.K.; IVANCHUK, V.I.

Structure of the solar corona of February 15, 1961. Astron.zhur. 38 no.5:855-860 S-O '61. (MIRA 14:9)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko.
(Sun--Corona)

S/214/62/000/003/003/004
I046/I246

AUTHOR: Ivanchuk, V.I.

TITLE: The nature of arc formations in the solar corona

SOURCE: Solnechnyy dannyye, no.3, 1962, 61-68

TEXT: The three-dimensional dome dypothesis is replaced by an alternative model visualizing the coronal arcs as darc vacuous plane formations which actually are magnetic arcs blown up, after the collapse of the central prominence, toa height where equilibrium is maintained between the kinetic coronal gas pressure and the magnetic pressure. The appropriate magnetohydrostatical equations in a gravitation field give the general shape of plane arcs:

$$y = y_m + (1/A) R_\odot \lg \cos (A R_\odot x) \qquad (6)$$

card 1/2

The nature of .....

where $\alpha = mg/kT$. The resulting half-width/height ratio of the arcs for $T = 10^6$ and $A = 0.5$ is $x_o/y_m = (1+y_m)^2/7y_m$, whereas experimental results are approximated fairly well by $x_o/y_m = (1+y_m)^2/11y_m$. To bridge the gap, additional upward thrust is required ($A = 0.8$) which can be supplied, for instance, by Ponomarev's mechanism (Ref.17: Soln. dannyye no. 12, 1960; Kandidatskaya dissertatsiya, Kiev, 1957): the momentum transferred to the coronal gas by the outgoing corpuscular stream is comparable with the force of gravity ($\approx 0.5\,\rho g$). There are 5 figures.

ASSOCIATION: Kafedra astronomii Kievskogo gosudarstvennogo universiteta (Department of Astronomy of the Kiev State University)

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BR

ACCESSION NR.: AT4034465 S/3091/63/000/002/0056/0061

AUTHOR: Ivanchuk, V. I.; Kurochka, Ye. S.

TITLE: The problem of classification of the spectra of auroras

SOURCE: Kiyev. Universitet. Sbornik rabot po Mezhdunarodnomu geofizicheskomu godu, no. 2, 1963, 56-61

TOPIC TAGS: aurora, auroral classification, upper atmosphere, auroral brightness, auroral height, auroral spectrum

ABSTRACT: Investigations by Stormer and his associates have shown that the lower the height of auroral luminescence the greater will be its mean brightness. It follows that there should be a spectrum-brightness dependence (assuming the correctness of certain conclusions drawn by the author in this and other papers). The proposed form of the spectrum-brightness dependence has been given elsewhere (V. I. Ivanchuk, Sbornik rabot KGU po MGG, no. 1). This latest paper gives quantitative estimates of the mean effective brightness for a large number of spectra on the basis of observations at Tiksi Bay. Table 1 in the original gives brief extracts from the observation journal for each of the 36 studied spectra and results of determination of the spectral type s in accordance with the classification presented in the above-cited paper. The table also gives the commencement time for exposure

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ACCESSION NR: AT4032229 S/3089/63/000/005/0305/0311

AUTHOR: Ivanchuk, V. I.; Kurochka, Ye. S.

TITLE: Comments on the classification of auroral spectra

SOURCE: AN UkrSSR. Mezhduvedomstvenny*y geofizicheskiy komitet. Geofizika i astronomiya; informatsionny*y byulleten', no. 5, 1963, 305-311

TOPIC TAGS: aurora, upper atmosphere, spectrometer, auroral classification

ABSTRACT: The authors discuss the spectral, photoelectric and spectrometric methods for studying emissions of the upper atmosphere. They note that photoelectric and spectrometric methods make it possible to narrow greatly the limits Δt and $\Delta\zeta$-- the space-time resolution, but that a considerable number of shortcomings are involved. However, the mass-nature of observations with such instruments can compensate for their inadequacies and permit detection of both general and local peculiarities of auroras. The authors have already published a spectral classification of auroras (Sb. rabot po MGG, KGU, No. 1, 58, 1961); much of this article is understandable only with reference to that paper. They have found that the character of the spectrum is determined primarily by the height of the luminescence or the depth of penetration into the atmosphere of the

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ACCESSION NR: AP4013135 S/0203/64/004/001/0026/0033

AUTHOR: Ivanchuk, V. I.

TITLE: The magnetic field of arc systems in the solar corona

SOURCE: Geomagnetizm i aeronomiya, v. 4, no. 1, 1964, 26-33

TOPIC TAGS: magnetic field, solar arc, corona, corona plasma, solar prominence, magnetic arc

ABSTRACT: The author has pointed out the importance of studying magnetic fields of the sun by investigating structural features of the corona. He has stated that arcs and arc systems are not shells or cupolas, but are actual "plane" arcs, produced by the packing of magnetic lines of force. Arc systems reflect the configuration of the magnetic field in any given region. The author found that some arcs are voids in luminous corona plasma. This explains the connection between solar prominences and arcs, assuming that arcs are "traces" of prominences. Decline of kinetic gas pressure within an arc is compensated for by an increase in magnetic pressure. On the basis of this view, a solution is found for equations of magneto-hydrostatics in its application to a "supernatant" magnetic arc. An equation is

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ACCESSION NR: AP4013135

obtained for magnetic lines of forces that satisfies the form of observed coronal arcs and the pattern of changes in compression of the arc with height. Computations of magnetic field strength in the arcs give a value of about 0.5 gauss at the apex (at a height of about ½ solar radius). "In conclusion, the author considers it his duty to express his thanks to S. K. Vsekhsvyatskiy for his aid and valuable advice and also to Ye. A. Ponomarev. Joint work with him served as the beginning of this investigation." Orig. art. has: 3 figures and 10 formulas.

ASSOCIATION: Kiyevskiy gosudarstvenny*y universitet (Kiev State University)

SUBMITTED: 05May63 DATE ACQ: 02Mar64 ENCL: 00

SUB CODE: AA NO REF SOV: 009 OTHER: 014

Card 2/2

S/0269/64/000/012/X0[illegible]/00[illegible]

[illegible] Astronomiya. Otd. vyp., Abs. 12.51.528

[illegible]

[illegible] with altitude and the magnetic field in the corona

[illegible] sbornik, no. 11, 1963 (1964), 51-[illegible]

[illegible] corona, polar ray, ray broadening, polar magnet[illegible]

[illegible] of polar rays in the corona [illegible] investigated [illegible] from the center of the solar disc. The author [illegible] the photographs were taken [illegible] corona of 1900 (from reproductions) [illegible] analysis [illegible]

[illegible] vestigates sun rays in the corona of 1954 (the photographs were taken with the aid [illegible] -meter camera), and [illegible] the corona of 1900 (from reproductions). An analysis [illegible] results [illegible] the author to the following conclusions: 1. The [illegible] of the solar [illegible] occurs linearly for $r = (1-2)R_{\odot}$; for sun rays, at [illegible], a power [illegible] variation holds true. 2. The degree of broadening is

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ACCESSION NR: AR5004834

... the corona of the same epoch. ... In the average ... width of the ray at the base. The theoretical ... the assumption that the boundaries of the rays are ... of the dipole field. The observed broadening ... theoretical value. The magnetic field introduced ...

determined by the force lines of the dipole field. The observed broadening curve
[illegible] than the theoretical value. The magnetic field introduced by E.
[illegible] latitude cutoff of the cosmic rays, is also [illegible]
[illegible] analysis leads the author to the conclusion that at
[illegible] field should tend to become radial. If the intensity
[illegible] Earth's polar is ~ 3.3, then at a distance [illegible]
[illegible] amounts to ~ 2--10^{-5} G. Bibliography, [illegible] titles.

[illegible] SUBM: AP INCL: OC

Pe-5/Pq-4 GW

S/3133/64/000/006/004/0054

... magnetic field in the solar corona

... Mezhduvedomstvennyy geofizicheskiy komitet. Informatsionnyy ... Mezhdunarodnogo Geofizicheskogo Goda (Materials ...), 46-54

... magnetic force line, dipole, solar activity cycle ... solar radius

... corona do not coincide with magnetic force lines of ... and, therefore, cannot be considered as repre-
sentative of a solar magnetic field. Variations in the shape and size of solar ... the shape of the solar activity cycle. Tangential lines drawn to ... for the solar magnetic poles. The point of ... on the position of one magnetic pole of the ... solar body during the 22-year cycle of solar activity, ... distance from the center of the solar disk. The ... the minimum of the solar activity cycle and ...

... The Sun was considered as a magnetically ... distances of the intersection point vary ... The dipole of the solar magnetic field ... for a point-shaped dipole. The inclina- ... rays and the normal rays can be expressed with the ... holds good at distances from solar center of ... solar latitudes of the Sun. The asymmetry of polar ... solar magnetic and rotation axes may be explained by ... corona. Orig. art. has: 1 figures, ... [ED]

... universitet (Kiev State University)

ENCL: 00 SUB CODE: AA

OTHER: 016 ATD PRESS: 3190

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